

DOCUMENT RESUME

ED 326 842

CS 010 341

AUTHOR Gaffney Janet S.; Anderson, Richard C.
TITLE Two-Tiered Scaffolding: Congruent Processes of Teaching and Learning. Technical Report No. 523.
INSTITUTION Bolt, Beranek and Newman, Inc., Cambridge, Mass.; Illinois Univ., Urbana. Center for the Study of Reading.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Jan 91
CONTRACT G0087-C1001-90
NOTE 16p.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Grade 1; High Risk Students; *Learning Processes; *Learning Strategies; Models; Primary Education; *Reading Instruction; *Teacher Education; Teacher Student Relationship
IDENTIFIERS *Reading Recovery Projects; *Scaffolding; *Vygotsky (Lev S); Zone of Proximal Development

ABSTRACT

A two-tiered scaffolding model can be used to explain the complex and critical relationships between the teaching and learning of teachers and the students they teach. The first tier of scaffolding is a teacher, or someone else who qualifies as a more capable other, providing support for a student. The second tier depicts the support necessary to assist an adult in supporting a child in a manner consistent with the method located on the first tier. The two-tiered scaffold illustrates the integral, interactive relationship between the processes used to prepare experts and the method used to teach novices. Reading Recovery, a supplemental program for first-grade children who are at risk of reading failure, can be seen as an instantiation of Vygotsky's theoretical framework and illustrates the two-tiered scaffolding model. (Twenty-seven references are attached.) (Author/SR)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

CENTER FOR THE STUDY OF READING

Technical Report No. 523

TWO-TIERED SCAFFOLDING: CONGRUENT PROCESSES OF TEACHING AND LEARNING

Janet S. Gaffney
Richard C. Anderson
University of Illinois at Urbana-Champaign

/ January 1991

University of Illinois at Urbana-Champaign
51 Gerty Drive
Champaign, Illinois 61820

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

D. Anderson

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
ERIC position or policy.

The work upon which this publication was based was supported in part by the
Office of Educational Research and Improvement under Cooperative Agreement
No. G0087-C1001-90 with the Reading Research and Education Center. The
publication does not necessarily reflect the views of the agency supporting the
research.

EDITORIAL ADVISORY BOARD
1990-91

James Armstrong

Gerald Arnold

Diana Beck

Yahaya Bello

Diane Bottomley

Clark A. Chinn

Candace Clark

John Consalvi

Irene-Anna N. Diakidoy

Colleen P. Gilrane

Barbara J. Hancin

Richard Henne

Michael J. Jacobson

Carole Janisch

Bonnie M. Kerr

Paul W. Kerr

Daniel Matthews

Kathy Meyer Reimer

Montserrat Mir

Jane Montes

Juan Moran

Anne Stallman

Bryan Thalhammer

Marty Waggoner

Ian Wilkinson

Hwajin Yi

MANAGING EDITOR
Fran Lehr

MANUSCRIPT PRODUCTION ASSISTANTS
Delores Plowman
Debra Gough

Abstract

In this report we put forth a two-tiered scaffolding model to explain the complex and critical relationships between the teaching and learning of teachers and the students they teach. The first tier of scaffolding is a teacher, or someone else who qualifies as a more capable other, providing support for a student. The second tier depicts the support necessary to assist an adult in supporting a child in a manner consistent with the method located on the first tier. The two-tiered scaffold illustrates the integral, interactive relationship between the processes used to prepare experts and the method used to teach novices. Reading Recovery, a supplemental program for first-grade children who are at risk of reading failure, is presented as an instantiation of Vygotsky's theoretical framework and is used to illustrate the two-tiered scaffolding model.

TWO-TIERED SCAFFOLDING: CONGRUENT PROCESSES OF TEACHING AND LEARNING

Time and elements have conspired to form the richly layered landscape of the Badlands in South Dakota. The red, rust, and cream bands of oxide and ash contrast with one another and with the horizon in which they are embedded. Yet, the uneven-edged layers fit like interlocking pieces of a puzzle. The awesome beauty of the Badlands emanates from the contrast of parts with the symmetry of the whole. Likewise, as we peel away individual tiers of the teaching-learning process for examination, visualize the criss-crossed, complex landscape from which each slice is drawn.

The metaphor of *scaffolding* has been used to describe the support that enables a learner to complete a task or achieve a goal that would have been unattainable without assistance (Wood, Bruner, & Ross, 1976). The concept of scaffolding is implicit in Vygotsky's notion of the *zone of proximal development*. The width of this zone "is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). Inherent in this definition of the zone of proximal development is the feature of social interaction between a learner and an individual with expertise. Although this interaction may be verbal, nonverbal, or a combination, Palincsar (1986) and Stone (1989) have emphasized the critical role of dialogue in scaffolded instruction.

What we are calling the *first tier* of scaffolding is a teacher, or someone else who qualifies as a more capable other, providing support for a student. Regulating the amount and nature of scaffolding requires a high degree of craftsmanship from the teacher. From the Vygotskian perspective, a high-craft teacher provides the minimal support necessary to assist a learner to operate at the upper limits of competence. Adjustable scaffolds are temporarily used to help extend the range of work and accomplish tasks not otherwise possible (Greenfield, 1984).

Several instructional methods have been developed with varying degrees of emphasis on scaffolding, zone of proximal development, social interaction, and dialogue. These concepts have been described as features of reciprocal teaching (Brown, 1985; Palincsar, 1986; Palincsar & Brown, 1984), guided participation (Rogoff, 1984), Experience-Text-Relationship method (Au & Kawakami, 1984), language acquisition and weaving skills (Greenfield, 1984), explicit explanation (Duffy et al., 1987), proleptic instruction (Stone, 1989; Wertsch, 1979), and assisted performance (Tharp & Gallimore, 1988).

We wish to extend the scaffolding metaphor by building a second tier on the model. The second level depicts the support necessary to assist an adult in supporting a child in a manner consistent with the method located on the first tier. In other words, this second level encompasses teacher education. The construction of a connected, upper tier rather than a separate scaffold, is crucial to understanding the proposed model. The two-tiered scaffold illustrates the integral, interactive relationship between the processes used to prepare experts (whether parents, educators, or peers) and the methods they use to teach novices.

Thus, our purpose is to extend the Vygotskian conceptual framework. Wertsch (1984) acknowledged Vygotsky's lack of discussion of development of the adult's role in providing the novice with assistance. Wertsch cautioned that poor definition of these functions could render the construct of the zone of proximal development too broad to be useful.

It is said that there's nothing so practical as good theory. It may also be said that there's nothing so theoretically interesting as good practice. We will highlight the critical features of our proposed extension of Vygotskian theory using examples from Reading Recovery, a program with demonstrated

success with young children who are at risk for reading failure. Although Reading Recovery was not developed on the basis of Vygotsky's theory, features of the program may be interpreted in Vygotskian terms (Clay & Cazden, in press). The stories from Reading Recovery reveal some perhaps generalizable truths about the interactive processes of learning and instruction.

An Instantiation of Vygotskian Theory

Reading Recovery is a supplemental reading and writing program for first-grade children who are at risk of reading failure. Reading Recovery was developed in New Zealand by Clay and her associates (1979, 1982, 1985) and has been successfully implemented in Ohio since 1984 (Pinnell, DeFord, & Lyons, 1988). The immediate goal of Reading Recovery is to assist the children who are most at risk of failure to read at or above the average levels of their first-grade peers in the least amount of time possible. Evaluations have indicated that children typically meet this goal after 12-16 weeks of intensive, one-to-one instruction for 30 minutes daily with a Reading Recovery teacher (Pinnell et al., 1988). This phenomenal rate of success of Reading Recovery children is described as accelerated progress.

The goal is for children to continue to improve their reading and writing performance after they have completed Reading Recovery. In Clay's words (1985) teachers must "encourage a self-improving system (p. 57)." In Slavin and Madden's (1989) synthesis of the research on effective reading programs for at-risk students by grade levels, Reading Recovery was the only first-grade program for which evidence was found of positive effects that are sustained for two years following discontinuation of the intervention.

Reading Recovery is not packaged in a kit of materials. Nor could one implement it by following a predetermined, instructional sequence. In other words, Reading Recovery is not a "teacher-proof" program; in fact, it is a "teacher-dependent" program. The success of the instruction appears to hinge upon the teacher's ability to make and execute the most "powerful decisions" throughout each lesson.

In a typical Reading Recovery lesson, the child rereads several familiar books; independently reads a book read for the first time the previous day; if necessary, studies letters or words; creates and writes a story; reassembles the story after the teacher has cut it up; and reads a new book.

A child usually has the opportunity to read five or more texts during a half-hour Reading Recovery lesson. This is vastly more than a first grader typically reads, especially one in the low group. The texts may be described as authentic, in the sense that such features as vocabulary and sentence structure are not closely controlled as in basal reading programs. When authentic materials are used, the probability increases that children will acquire strategies that are broadly adaptive, rather than strategies that are skewed to accommodate an artificially constrained range of features.

Reading Recovery engages children in reading *whole* books and stories. One of the instructional premises of the program is that the teacher should focus the child's attention on the largest chunk of information that will contribute to learning. Thus, the teacher is disposed to draw the child's attention to the overall story line of a book rather than to a sentence, to a sentence rather than a word, and to a word rather than a letter. Learning to read cannot be reduced to accretion of discrete items of knowledge -- such as letters, letter clusters, or words. An overemphasis on discrete items is inefficient at best and self-defeating at worst.

Scaffolding

At the heart of Reading Recovery instruction is the scaffolding the teacher provides to keep the child within his or her zone of proximal development. An important scaffold is selecting a book of just the right level of difficulty. Too difficult a book and a child may flounder. Too easy a book and the child will not have enough productive "reading work."

The difficulty of a book is affected by such factors as whether it has a predictable pattern, the extent to which the pictures illustrate the concepts, and the familiarity of the words. However, a book is not easy or difficult in and of itself. For a child having trouble learning to read, the difficulty of a book can be intelligibly discussed only in relationship to this particular child. Because Reading Recovery is implemented as a one-to-one program, the teacher does not have to compromise in making decisions about books.

Moreover, whether a particular child will find a particular book easy or difficult depends upon the context in which the book is read and the conditions surrounding its use. Specifically, the difficulty of a book is influenced by the teacher's orientation, or introduction, to the book. An orientation may include looking through the book with the child, commenting on what is significant in the pictures, and discussing the plot. The teacher may use new and important words in her oral orientation and may ask the child to locate one or two of these words in the text. For example, if *terrible* is important for grasping the plot, the teacher may ask, "What letter would you expect to see at the beginning of *terrible*?" And then, "Can you find *terrible* on this page?"

Or, depending upon the child, his or her level of reading development, and the book, the teacher's orientation to a book may include none of these elements. Reading Recovery operates on the principle that each child's developmental trajectory as a reader may be at least somewhat different from every other child's. Just as expedition leaders decide what route to take up a mountain based on features of that mountain, strengths of the climbers, and the weather, so, too, do Reading Recovery teachers create an individual program for each child. It is part of the lore of Reading Recovery that, among the thousands of children who have received the program, no two have ever read exactly the same books in exactly the same order.

Reading Recovery reinforces the idea that the zone of proximal development is instructionally sensitive, that it must be recalibrated constantly to take account of new learnings of the child. Thus, a teacher is always supporting a child at the "cutting edge of the child's competencies" (Clay & Cazden, in press). This means that a child's program cannot be fixed in advance, but must be adjusted from lesson to lesson and even from minute to minute within lessons.

Within the zone of proximal development, Reading Recovery teachers operate using an "implicit theory of steps" (Stone, 1989, p. 37). The teacher tries to anticipate and support the child's next steps. In mountain climbing, a piton is wedged into the mountain to help the climber stretch to a higher plane. The child-climber is able to stretch to reach the next piton because of the support provided by the scaffold. The teacher's role is to secure the next piton for the learner. Consistent with the Vygotskian perspective, in Reading Recovery, "instruction leads development rather than waiting for it" (Clay & Cazden, in press).

In an alternative image, the scaffolding Reading Recovery teachers provide can be thought of as serving as a safety net. Because of the scaffolding, the child is enabled to take new risks at a higher level and, therefore, independence in reading is promoted. Scaffolding must be adjusted over time so that there is a shift in responsibility from the teacher to the child. The child must come to accept the responsibility for all aspects of reading. Whereas the teacher initially adjusted the scaffold relative to the learner's skill as it interacted with task difficulty, the responsibility for flexible adjustment becomes the learner's responsibility.

For example, a Reading Recovery teacher may, if needed, direct a child just beginning to read to point to the words as he reads them. This helps the child keep his place and promotes one-to-one correspondence between spoken words and printed words. Later in the child's program the teacher will ask the child to read a familiar book "with your eyes," and comment approvingly if the child is able to read it with greater fluency without pointing with his finger. Then, for a period of time the teacher will occasionally ask questions prompting the child to evaluate whether or not he needs to use his finger.

Finally, a stage will be reached where the child is in complete control of pointing. At this stage, the child will read without pointing most of the time, but he may point if he finds the text difficult or if he is in danger of losing his place.

One speaks of scaffolding as something that is provided or constructed by the teacher. From another perspective, the scaffold is built by the child in the form of emerging skills and knowledge. Sometimes the child has built the scaffold but doesn't use it for support. The teacher's role is to enlist the child's nascent abilities to support whatever is currently difficult (Clay, 1987; Greenfield, 1984).

Emphasis on Strategies

To become self-improving readers, children must consistently and independently solve problems on the fly while reading text. The premise of Reading Recovery is that for this to happen, children must learn to be strategic in their use of semantic, syntactic, orthographic, and phonological cues. They must learn to monitor their reading performance and correct errors on their own.

The emphasis in Reading Recovery on strategies is entirely consistent with Soviet developmental psychology. Drawing on this perspective, Stone (1989) suggests that an overriding goal is for children to adopt more strategic conceptions of tasks. Thus, in the case of reading, while the ostensible task is to construct meaning for a specific text, the goal is for the child to learn how to construct meaning for any text.

In some reading programs, strategy instruction has become decontextualized. Means have become confused with ends; the task has become learning a recipe that describes a strategy rather than acquiring functional control over a strategy. However, a child who is able to recall a five-step procedure for summarizing a story, for instance, may or may not be able to use the procedure. Presenting strategies in a "front-loaded" (Duffy et al., 1987), decontextualized manner radically changes the task and may circumscribe maintenance and generalization (Stone, 1989).

Reading Recovery teachers support the child's development and use of strategies as a means for facilitating independent learning. Teaching for strategies, self-monitoring, and cross-checking is always done in the context of reading and writing authentic texts, as is illustrated in the following vignette. Nancy, a first grader, was reading *My Grandpa* (Mitchell, 1986) for the first time following an orientation to the text by the teacher. Among other points, the teacher mentioned during her orientation that people in some countries call cookies *biscuits* while referring to a picture in the text. Nancy read:

Nancy:	<u>He</u>	<u>likes</u>	<u>eating</u>	<u>berries</u>	SC	R
Text:	He	likes	eating	biscuits		

Note that she read *berries* for *biscuits*. The codes SC and R mean, respectively, that she self-corrected and reread the sentence from the beginning. When Nancy completed the sentence, which continued on the facing page, the following conversation ensued.

Teacher: You read *berries* for *biscuits*. Then, you fixed it. How did you know it was *biscuits*?

Nancy: Because it began with a *b*.

Teacher: Yes, *biscuits* begins with a *b* but so does *berries*.

Nancy: They both have *s*'s too.

Teacher: Yes, *biscuits* begins with a *b* but so does *berries*.

Nancy: They both have *s*'s too.

Teacher: So, how did you know?

Nancy: The picture! They don't look like berries.

In this segment of dialogue, the teacher is trying to help the child gain conscious realization and self-regulation of strategies for word analysis. When the emphasis is on strategies rather than discrete items of knowledge, progress may occur in leaps rather than small, cumulative steps. Leaps are promoted when the teacher is able to capitalize on examples that are "powerful," or informative and convincing, for a particular child (Clay, 1979). Within the social-interactive framework, the teacher may easily respond to leaps by child.

Education of Reading Recovery Teachers

The second tier of scaffolding in our proposed extension of Vygotsky is the education of teachers. In the context of Reading Recovery, the first tier drives the second tier. By this we mean that teacher-child interactions form the essential content of teacher training. Without the concurrent teaching of children, there would be no fabric to weave into the inservice sessions.

Teacher education has often been criticized for the discontinuity between university course work and field experience (Joyce & Clift, 1984). The teacher education component of Reading Recovery is intended to narrow the gap between theory and practice. Trainees, who must be experienced primary grade teachers, immediately begin teaching Reading Recovery to a minimum of four children on a daily basis. During an academic year, trainees work with a range of children. When children are "discontinued" from Reading Recovery, because they are now reading at the average level of their peers, other children enter the program. Over the year, the teachers usually teach two cycles of children. A teacher-in-training teaches over 600 Reading Recovery lessons in her first year.

In addition, the teachers have the opportunity to observe two lessons at most Reading Recovery inservice sessions. Each week, two of the teachers conduct 30-minute lessons with children whom they are currently teaching. The other trainees observe the lessons through a one-way mirror. The Teacher Leader, as the teacher trainer is called in Reading Recovery, engages the remaining trainees in vigorous discussion of each lesson while it is occurring. Over an academic year, teachers-in-training observe and discuss 40-50 lessons. The discussions of "behind-the-glass" lessons are intense, challenging, and synergistic.

The teacher-observers participating in behind-the-glass sessions discuss the child's behavior, teacher-child interactions, and the teacher's implementation of procedures. They are challenged to form hypotheses about the child's performance, to present evidence from the lesson unfolding in front of them that supports or disconfirms their hypotheses, to provide rationales for the teacher's decisions, and to suggest alternative instructional procedures.

Here's an example of a behind-the-glass session. As it was early in the training year, only the second inservice session, the Teacher Leader was intent on eliciting accurate descriptions of the child's performance from the teachers. Notice that the teachers are asked to support their statements with evidence from this lesson or other reasoning.

Teacher Leader: We are observing familiar reading, the first component of a lesson. What are some of the purposes of familiar reading?

Teacher Leader: Is this child reading fluently?

Teacher 1: Yes, I think so.

Teacher 6: I do too (two other teachers nod in agreement).

Teacher Leader: Think of the children you're working with in Reading Recovery. How does his reading fluency compare to theirs?

Teacher 3: Mine read like him.

Teacher 2: Mine, too (all other teachers nod in agreement).

Teacher Leader: You're all experienced teachers of Grade 1 children. Think of the average and above average readers in first grade. Does this child read this book as fluently as they would?

Teachers All: NO! (emphatically with head shaking)

Teacher Leader: Is this child reading fluently?

All: No! (in unison)

Teacher Leader: It is important for you to keep in mind your purpose. Your goal is to have this child read as well as average readers in his class . . . that's your standard. Now, is fluency the only thing that's important . . . that he goes fast?

Teacher 8: He should read with expression . . . meaning.

Teacher 5: In phrases.

Teacher Leader: Why is it important that the child read with both phrasing and fluency?

The Teacher Leader is relentless in her pursuit of an accurate characterization of the child's reading. Interestingly, during the second lesson, taught by a different teacher, that immediately followed the lesson excerpted above, the observers quickly reached a consensus about the fluency with which the child read familiar books. The Teacher Leader then was able to move to a different level of questioning: She challenged the teachers to talk about why phrased and fluent reading are important and asked them to suggest procedures from *The Early Detection of Reading Difficulties* (Clay, 1985) that they could use to teach for fluency.

Compare the foregoing discussion with the one from a session in the spring, when the teachers were about 75% of the way through their training. They are observing the phase of the lesson in which the child writes a story she has composed with the support of the teacher.

Teacher Leader: The teacher just praised the child for getting the *ch* down in *chair*. Why did she praise her?

Teacher 9: Because that's a hard one to learn.

Teacher 5: It's important.

Teacher Leader: And she isn't doing it in pieces . . .

Teacher 7: Chunks.

Teacher Leader: Is getting chunks down important at this level? The teacher said she wanted to work for transfer. Why would chunks be helpful for that?

Teacher 1: They might start . . . they might start to see patterns.

Teacher Leader: Why is it more important to see patterns than to talk about individual letters?

Teacher 4: She's got a way to get to unknown words. When she goes to another word that contains the same sound cluster she's able to write more of the word.

Teacher 1: Another suggestion I have is that I don't think she needs to look back at the practice page. She did just look back up at *chair* but I would fold the book under and have her write, or cover it or something.

Teacher Leader: Why would you choose to do that?

Teacher 1: Because if she can write that many words she ought to be able to do it from memory without an example.

Teacher 6: Seeing and retaining visual patterns.

Teacher Leader: And how does that help her? Why would it be beneficial for her to be doing it from memory rather than just copying it?

Teacher 7: It indicates a certain knowledge of what she's working on and also the idea of being able to not only hear, but how to utilize the chunks--the clusters--of letters. I think the book talks about the more fluent readers are those that are able to use those chunks, at specific times and transfer them to other areas in that particular practice time.

In both lessons, the Teacher Leader was supporting as well as stretching the group. Comparing the transcripts that were recorded at different points in the training year, one notices shifts in the role of the Teacher Leader and the teachers. In the latter transcript, the Teacher Leader just states what's occurred, for example, "The teacher just praised the child." The Teacher Leader chooses to focus her questions at a higher level of thinking requiring the teachers to reflect about the value of working with larger chunks of material. Notice the teachers have runs of sequential responses. The Teacher Leader comes in to challenge the teachers to think about the purpose of the task. Also, the teachers' comments are now longer and demonstrate that they have an increased understanding of processes and strategies, the relationship between reading and writing, and the procedures used in Reading Recovery (Clay, 1985). All of this discussion ensued because the child could chunk two letters in a writing task!

The number and diversity of lessons teachers observe over a year broadens instructional horizons. The diversity of lessons observed and discussed, as well as lessons taught, expand both breadth and depth of the teacher's experiential knowledge. This inservice process forestalls oversimplification (Spiro, 1988). That icy spots continue to be encountered by the teachers increases their cognitive agility (Burton, J.S. Brown, & Fischer, 1984).

Awareness of Discrepancies and the Self-Improving System

The difficulty of tasks can be calibrated in terms of the nature and frequency of discrepancies, or mismatches, between the learner's performance and some currently appropriate standard of performance. The concept of discrepancies is integral to stretching the zone of proximal development. The high-craft teacher searches for ways to engage the learner in performing tasks that are at the outer limits of the learner's potential, where the learner is working at the edge of her competency.

The learner's becoming aware of mismatches is a precursor to new learning. For example, a prerequisite for self-correction is awareness that an error has been made. Initially, with easy texts, self-monitoring may dawn as a result of a mismatch in the number of words read to the number of words on a page of text.

A six-year-old child just entering Reading Recovery read the book *I Can Read* (Malcolm, 1983).

Child	<u>I</u>	<u>can</u>	<u>read</u>	<u>it</u>	<u>to</u>	<u>my</u>	<u>sister.</u>
Text	I	can	read	—	to	my	sister.

The child appeared to be unaware that he had added a word to the text. The role of the teacher was to encourage his awareness of a mismatch.

Reading Recovery includes several suggestions for promoting awareness of mismatches arising from violations of one-to-one correspondence (Clay, 1985). The teacher may ask the child simply, "Were you right?" This general prompt may be sufficient to encourage the child to reread and notice his insertion. A more specific prompt would be to ask, "Were there enough words?" or "Did you run out?" What is important is that the child learns to monitor his own reading, even if he is unsure at this point of how to correct an error.

Once the child shows evidence of awareness of errors -- revealed by tentativeness, balking, or uncertainty -- the teacher may ask, "What did you notice?" or "Why did you stop?" These questions further encourage the child to monitor his reading.

A child who is aware of mismatches of a certain kind is on the road to conquering them. When the child consistently exhibits awareness of mismatches without prompting from the teacher, then the child's zone of proximal development has expanded. And then the teacher must select the next process over which this child needs to gain control in order to be a successful reader. She enthusiastically accepts attempts to resolve mismatches ("I liked the way you tried to work that out."). At the same times, she praises successful performance ("How did you know?"), because the real task is learning the process, or how to self-correct, not simply responding correctly to any particular item.

As soon as possible, the child must begin to independently correct mismatches. Only when the child initiates the action may it be called self-correction. In other words, the weight of the responsibility for noticing and handling discrepancies gradually shifts from the teacher to the child on increasingly difficult and complex texts. The child is afforded opportunities to solve problems with minimal assistance. Again the outer limit of the zone of proximal development is being stretched. The child is becoming a self-improving reader.

Resolving discrepancies between performance and currently appropriate standards is also integral to Reading Recovery teacher training. The lessons observed behind the glass, discussions with peers, and the procedures suggested in the *Early Detection of Reading Difficulties* (Clay, 1985) all provide standards with which teachers can compare their own understanding and performance. These comparisons allow for multiple mismatches, thereby creating tension, whose resolution results in new learning.

In observing a lesson behind the one-way mirror, discrepancies may arise between what the teachers observe during this lesson and what the teachers are doing in their own tutoring. For example, in the first two weeks that they are in Reading Recovery, the children explore and gain control over what they already know. The teachers are instructed to use meaningful texts in reading and writing and to ensure that the tasks are easy for the children. The teachers are cautioned not to teach! As the new group of teachers observed an experienced Reading Recovery teacher work with a child during her initial period, cries arose, "But she's teaching!" "I thought that was teaching!" "Is that teaching?" The mismatch generated a rich discussion about the role of the teacher during this initial period and about the participants' understanding of what "teaching" is.

The mismatch created tension that led the group to generate hypotheses about the teaching going on in the lesson they were watching and about their own teaching. Whether the teachers' ideas were sound or not is not so important as that the teachers were engaged in the process of tension-resolution that could lead to new learning.

The Teacher Leader sometimes confronts teacher trainees with questions or statements that contradict their present understandings or current activities. A Teacher Leader might say, "One time in Tasmania I saw a teacher who said that she had the same lesson focus for each one of her children. You wouldn't say that, would you?" or, "Although she's having the child draw a picture to help remember the story, most of your children aren't using pictures any more. Are they?"

Thus, Reading Recovery teacher training creates many and varied mismatches. The articulation and subsequent discussion are central to teacher trainees becoming self-improving teachers.

Concluding Remarks

Vygotsky contended that higher mental functions are developed first on an interpsychological plane through social interactions and second on an intrapsychological plane (Vygotsky, 1981). An individual's potential level is not limited by that individual's endowed ability but is raised exponentially by the quality of the social interaction in which the individual participates. The social interaction not only precedes an individual's development of higher mental functions, but the organizational features of the social context are also internalized and reflected in the individual's performance (Wertsch & Rogoff, 1984).

In our two-tiered conceptualization, the conditions within which the teacher's learning is embedded not only affects the teacher, but in addition, impacts upon the child. To an observer who is naive to Reading Recovery, the social interaction in a lesson may appear to be teacher-driven. In reality, the expert teacher is responding to the evidence and information provided by the child; the teaching "can be likened to a conversation in which you listen to the speaker carefully before you reply" (Clay, 1985, p. 6). Thus, despite appearances, the instruction is really child-driven. Not only is the child the catalyst for interactions occurring on the first tier (teacher-child), the child is the driving force for the interactions occurring on the second tier (Teacher Leader - teacher).

The focus at both tiers is on the use of strategies. One cannot directly compare a child or a teacher for each of the infinite array of difficulties that they may confront. However, one can help another to use strategies that are effective in problem solving. At both tiers, responsibility for independent action gradually shifts from expert to novice, that is, from teacher to child and, likewise, from Teacher Leader to teacher. The goal is for both the teacher and child to function independently at increasingly higher levels on more and more difficult tasks.

References

- All, K. H., & Kawakami, A. J. (1984). Influence of the social organization of instruction on children's text comprehension ability: A Vygotskian perspective. In T. E. Raphael & R. E. Reynolds (Eds.), *The contexts of school-based literacy* (pp. 63-77). New York: Random House.
- Brown, A. L. (1985). *Teaching students to think as they read: Implications for curriculum reform* (Tech. Rep. No. 58). Urbana-Champaign: University of Illinois, Center for the Study of Reading.
- Burton, R. R., Brown, J. S., & Fischer, G. (1984). Skiing as a model of instruction. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 139-150). Cambridge, MA: Harvard University Press.
- Clay, M. M. (1979). *The early detection of reading difficulties* (2nd ed.). Auckland, New Zealand: Heinemann.
- Clay, M. M. (1982). *Observing young readers: Selected papers*. Exeter, NH: Heinemann.
- Clay, M. M. (1985). *The early detection of reading difficulties* (3rd ed.). Auckland, New Zealand: Heinemann.
- Clay, M. M. (1987). Learning to be learning disabled. *New Zealand Journal of Educational Studies*, 22, 155-173.
- Clay, M. M., & Cazden, C. B. (in press). A Vygotskian interpretation of reading recovery. In L. C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of socio-historical psychology*. New York: Cambridge University Press.
- Duffy, G. G., Rochler, L. R., Siven, E., Rackliffe, G., Book, C., Meloth, M. S., Vavrus, L. G., Wesselman, R., Putnam, J. & Bassirir, D. (1987). Effects of explaining the reasoning associated with using reading strategies. *Reading Research Quarterly*, 22, 347-368.
- Greenfield, P. M. (1984). A theory of the teacher in the learning activities of everyday life. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 117-138). Cambridge, MA: Harvard University Press.
- Joyce, B., & Clift, R. (1984). The phoenix agenda: Essential reform in teacher education. *Educational Researcher*, 13, 5-18.
- Malcolm, M. (1983). *I can read*. Wellington, New Zealand: Department of Education.
- Mitchell, G. (1986). *My grandpa*. New South Wales, Australia: Martin Educational.
- Palincsar, A. S. (1986). The role of dialogue in providing scaffolded instruction. *Educational Psychologist*, 21, 73-98.
- Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1, 117-175.
- Pinnell, G. S., DeFord, D. E., & Lyons, C. A. (1988). *Reading recovery: Early intervention for at-risk first graders*. Arlington, VA: Educational Research Service.

- Rogoff, B. (1984). Adult assistance of children's learning. In T. E. Raphael & R. E. Reynolds (Eds.), *The contexts of school-based literacy* (pp. 27-40). New York: Random House.
- Slavin, R. E., & Madden, N.A. (1989). What works for students at risk: A research synthesis. *Educational Leadership*, 46, 4-13.
- Spiro, R. J. (1988). *Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains* (Tech. Rep. No. 441). Urbana-Champaign: University of Illinois, Center for the Study of Reading.
- Stone, C. A. (1989). Improving the effectiveness of strategy training for learning disabled students: The role of communicational dynamics. *Remedial and Special Education*, 10, 35-42.
- Tharp, R. G., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context*. New York: Cambridge University Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1981). The genesis of high mental functions. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 144-188). Armonk, NY: Sharpe.
- Wertsch, J. V. (1979). From social interaction to higher psychological processes: A clarification and application of Vygotsky's theory. *Human Development*, 22, 1-22.
- Wertsch, J. V. (1984). The zone of proximal development: Some conceptual issues. In B. Rogoff & J. V. Wertsch (Eds.), *Children's learning in the zone of proximal development* (pp. 7-18). San Francisco: Jossey-Bass.
- Wertsch, J. V., & Rogoff, B. (1984). Editors' notes. In B. Rogoff & J. V. Wertsch (Eds.), *Children's learning in the zone of proximal development* (pp. 1-6). San Francisco: Jossey-Bass.
- Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology & Psychiatry*, 17, 89-100.

Author Note

This report will also appear as a chapter in E. H. Hiebert (Ed.), *Literacy for a diverse society: Perspective, programs and policies*. New York: Teachers College Press.